

BULATOV, A.I.

Problem of selecting the type of deformation in testing plugging
cements. Trudy KF VNII no.5:145-148 '61. (MIRA 14:10)
(Oil well cementing)

BULATOV, A.I.

Problem of changes in the mobility of plugging cements. Trudy KF
VNII no.5:149-157 '61. (MIRA 14:10)
(Oil well cementing)

BULATOV, A.I.

Method of determining the permeability of plugging cements. Trudy
KF VNII no.5:158-161 '61. (MIRA 14:10)
(Oil well cementing)

BULATOV, A.I.

Inexpedient use of pure plugging portland cements in high-temperature wells. Trudy KF VNII no.5:247-250 '61. (MIRA 14:10)
(Oil well cementing)

MACHINSKIY, Ye.K.; BULATOV, A.I.

Relative longevity of portland and cinder-sand ements in wells
having high temperatures. Trudy GrozNII no.10:32-37 '61.
(MIRA 15:2)

(Oil well cementing)

BULATOV, A.I.; MACHINSKIY, Ye.K.

Effect of aggressive waters on portland and cinder-sand plugging
cements. Neft. khoz. 39 no.6:29-33 Je '61. (MIRA 14:8)
(Oil well cementing)

BEREZHNOY, Aleksandr Ivanovich; BULATOV, Anatoliy Ivanovich; KULAGIN, Pavel Grigor'yevich; VATOLIN, G.N., ved. red.; VORONOVA, V.V., tekhn. red.

[Plastics in petroleum and gas industries] Plastmassy v nef'tianoi i gazovoi promyshlennosti. Moskva, Gostoptekhizdat, 1962. 168 p.
(MIRA 15:7)

(Petroleum engineering--Equipment and supplies)
(Plastics)

BULATOV, Anatoliy Ivanovich; DON, N.S., red.; ISAYEVA, V.V., ved.
red.; BASHMAKOV, G.M., tekhn. red.

[Cement for cementing deep wells] TSementy dlia tsementirovaniia
glubokikh skvazhin. Moskva, Gostoptekhnizdat, 1962. 201 p.
(MIRA 15:5)

(Oil well cementing)

BULATOV, A.I.; KARMANOV, I.A.

Cements of reduced specific weight for cementing deep high-
temperature wells. Gaz. prom. 7 no.4:8-10'62 (MIRA 17:7)

BULATOV, A.I.; KARMANOV, I.A.

Industrial use of slag-sand cement in cementing deep wells
in the Kuban. Trudy KF VNII no.9:50-55 '62. (MIRA 15:9)
(Kuban--Oil well cementing)

BULATOV, A.I.; ABRAMOVA, Ye.I.

Permeability of stones made from plugging slag and portland
cements. Trudy KF VNII no.9:56-63 '62. (MIRA 15:9)
(Cement--Permeability)

BULATOV, A.I.; KARAYEV, A.K.; KARMANOV, I.A.; SIDOROV, N.A.

Using cement slurries of the reduced specific gravity
in fields of Krasnodar Territory. Neft. khoz. 40
ro.5:21-25 My '62. (MIRA 15:9)
(Krasnodar Territory ~~Oil~~ well cementing)

BULATOV, A.I.

Mechanical disintegration of cement stone in the annular space of a well. Trudy KF VNII no.11:22-26 '63.

Fine grist and problems of the hardening of plugging cements for deep wells. 27-36

Hydration depth of plugging cements under various conditions of stone hardening. 37-40
(MIRA 17:3)

BULATOV, A.I.

Nature of annular-space gas, water, and petroleum emulsions.
Gas. prom. 8 no.12:6-10 '63 (MIR 18:2)

BULATOV, Anatoliy Ivanovich; KAYESHKOVA, S.M., ved. red.

[Cementing deep wells] TSementirovanie glubokikh
skvazhin. Moskva, Nedra, 1964. 289 p.
(MIRA 17:11)

KARMANOV, I.A.; BULATOV, A.I.

Evaluating the flow properties of cement slurries. Neft.
khoz. 42 no.1:19-23 Ja'64. (MIRA 17:5)

ASHRAF'YAN, M.O.; BULATOV, A.I.

Using new retarders of the hardening time of plugging solutions.
Neft. i gaz. prom. no.4:23-25 C-D '64 (MIRA 18:2)

ASHRAF'YAN, M.O.; BULATOV, A.I.

Treating plugging solutions with potassium bichromate and "gipan"
for use in high-temperature wells. Burenie no.4:26-29 '64.

(MIRA 18:5)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-issledovatel'skogo instituta.

BULATOV, A.L., inzh.

Sealing of the blocking locks in high-voltage power distributing
systems. Energetik 12 no.10:16-17 O '64. (MIRA 17:11)

BULATOV, A.I.; LYKOV, Ye.A.; SIDOROV, N.A.

Preventing annular space gas manifestations; a topic for discussion. Neft. khoz. 42 no.11:20-26 N '64 (MIRA 18:2)

SHISHCHENKO, R.I.; BULATOV, A.I.; MALEVANSKIY, V.D.; SIBIRKO, I.A.

Investigating the nature of gas manifestations subsequent to
well cementing. Gaz. prom. 10 no.9;7-11 '65. (MIRA 18:11)

YEREMENKO, Terentiy Yefimovich; BULATOV, A.I., red.; ISAYEVA,
V.V., ved. red.

[Bracing oil and gas wells] Kreplenie neftiannykh i gazo-
vykh skvazhin. Moskva, Nedra, 1965. 213 p.
(MIRA 18:5)

SIDOROV, N.A., red.; BULATOV, A.I., red.

[Improving oil and gas well drilling] Sovershenstvovanie
bureniia neftianyykh i gazovykh skvazhin. Moskva, Nedra,
1965. 222 p. (MIRA 18:7)

KOGAN, V.S.; LAZAREV, B.G. BULATOVA, R.F. Prinimal uchastiye: BULATOV, A.S.,
diplomant

Differences in the lattice constants of isotopes of neon. Zhur.
eksp. i teor. fiz. 40 no.1:29-31 Ja '61. (MIRA 14:6)

1. Fiziko-tekhnicheskiy institut AN Ukrainskoy SSR.
(Neon--Isotopes)

KOGAN, V.S.; BULATOV, A.S.

Temperature dependence of the isotopic effect in the nickel
lattice. Zhur. eksp. i teor. fiz. 42 no.6:1499-1501
Je '62. (MIRA 15:9)

1. Fiziko-tekhnicheskiy institut AN Ukrainskoy SSR.
(Nickel--Isotopes) (Crystal lattices)

ACCESSION NR: AP4012535

S/0056/64/046/001/0148/0152

AUTHORS: Kogan, V. S.; Bulatov, A. S.; Yakimenko, L. F.

TITLE: Texture in layers of hydrogen isotopes condensed in a cooled substrate

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 148-152

TOPIC TAGS: hydrogen isotopes, protium, deuterium, tritium, x ray structure, condensed hydrogen isotope, layer texture, protium crystal structure, deuterium crystal structure, tritium crystal structure, texture effect

ABSTRACT: To ascertain whether the difference between the x-ray diffraction patterns of condensed deuterium and protium is due to the presence of a texture, in contradiction to the earlier assumption by the authors (ZhETF v. 37, 678, 1939) that the difference is due to differences in extinction rules, the earlier experimental

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ACCESSION NR: AP4012535

procedure was modified. X-ray photographs were taken with the hydrogen isotopes condensed in one case inside a beryllium tube and in the other on the surface of a copper rod. Comparison of the photographs shows that the latter specimens have a texture which is not the same for protium layers as for deuterium. Preliminary data were also obtained for tritium. A re-evaluation of the previous structure data in light of the existence of this texture leads to the conclusion that both isotopes have a hexagonal structure with somewhat different axial ratios c/a . For protium the copper-radiation lines are (100), (002), and (101) with $c = 6.6 \text{ \AA}$ and $a = 3.78 \text{ \AA}$ ($c/a = 1.63$). The corresponding lines for deuterium are (100), (002), and (101) with $a = 3.54 \text{ \AA}$ and $c = 5.91 \text{ \AA}$ ($c/a = 1.67$). "The authors express their gratitude to Academician AN UkrSSR B. G. Lazarev for a discussion of the results." Orig. art. has: 3 figures.

ASSOCIATION: Fiziko-tekhnicheskii institut AN UkrSSR (Physicotechnical Institute, AN UkrSSR)

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20 July 63

L 45042-65 EPR ()/EPR (n)-2/EPR/EWG ()/REC (k)-2/EWT (d)/EWT (1)/EWT (m)/ENP (b)/EWT (t)
 PR-4, 1-4/P-4 5.3.3 WW/ID

ACCESSION NR: AP500684

S/0181/65/007/003/0852/0857

AUTHOR: Bulatov, A. S.; Kogan, V. S.; Yakimenko, L. F.

TITLE: Texture in layers of gases condensed on a cold substrate

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 852-857

TOPIC TAGS: hydrogen, neon, condensed layer, layer structure, low temperature research

ABSTRACT: Unlike earlier investigations of orientation in layers obtained by condensation from the vapor phase, which were devoted principally to metallic condensates, the object of investigation in this work were crystals with molecular binding forces, namely hydrogen and neon condensed from the gas phase on substrates cooled with liquid helium. Along with natural isotopic mixtures of each gas (protium and Ne²⁰), the heavier isotopes (deuterium and Ne²²) were also investigated. The technique was similar to that used by the authors earlier (ZhETF v. 37, 678, 1959 and v. 46, 148, 1964). The main modification was the use of a substrate in the form of a beryllium plate of thickness 0.4 mm, which could be set at different angles to the primary beam of x-rays used for the structural analysis. The re-

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L 49042-65

ACCESSION NR: AP5005894

sults have shown the presence of texture in the layers. Protium has a texture with axes [001] of the hexagonal lattice oriented either perpendicular to the substrate (condensation with substrate temperature ~ 1.8K) or parallel to it (condensation at 4.2K). Deuterium has a texture with [001] axes perpendicular to the substrate in the condensation temperature interval 1.8--4.2K. Both neon isotopes condensed at 4.2K have a texture with [111] of the cubic lattice perpendicular to the axis of the cylindrical sample. It is suggested that the texture depends on the degree of supersaturation in the chamber, i.e., the difference between the pressure admitted into the chamber and its equilibrium vapor tension at the substrate temperature. Arguments in favor of this hypothesis are presented. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskij institut AN SSSR, Khar'kov (Physicotechnical Institute)

SUBMITTED: 17Oct64

ENCL: 00

SUB CODE: SS, TD

NR REF SOV: 004

OTHER: 000

Cord 2/2 CC

BULATOV, B.; TIKHOMIROV, V.N., red.; RAKITIN, I.T., tekhn. red.

[Brazil]Braziliia. Moskva, Izd-vo "Znanie," 1963. 47 p.
(Novoe v zhizni, nauke, tekhnike. XII Seriya: Geologiya i
geografiia, no.2) (MIRA 16:2)
(Brazil)

NIKITENKO, M.D., inzh.; FEL'DMAN, B.A., inzh.; LOMAKA, N.F., inzh.;
BULATOV, B.I., inzh.

Using bauxite-titanium foundry pig iron. Stal' 23 no.6:573-574
Je '63. (MIRA 16:10)

SERGEYEV, N.V.; VETROV, I.Ye.; DROZDOV, A.A., inzh., prepodavatel';
SAVEL'YEV, S.T., inzh., prepodavatel'; SARKIS, M.N., inzh.,
prepodavatel'; ~~BUKATOV~~, B.N., inzh., prepodavatel'; ~~DUKLER~~, V.D.,
inzh., prepodavatel'; FEL'DMAN, N.F., prepodavatel'

Once more about the training of locomotive servicing brigades.
Elsk. i tepl. tiaz. 5 no.5:44 My '61. (MIRA 14:7)

1. Nachal'nik Kiyevskoy tekhnicheskoy shkoly (for Sergeyev).
2. Zamestitel' nachal'nika Kiyevskoy tekhnicheskoy sh'oly
(for Vetrov). 3. Kiyevskaya tekhnicheskaya shkola (for
Drozdoz, Savel'yev, Sarkis, Bulatov, Dukler, Fel'dman).
(Railroads--Employees)
(Locomotives--Maintenance and repair)

RUDAYA, I.I.; DROZDOV, A.I., inzh., retsenzent; BULATOV, B.N., inzh.,
retsenzent; SOBAKIN, V.V., inzh., red.; MEDVEDEVA, M.A.,
tekhn. red.

[Electrical equipment of diesel locomotives] Elektricheskoe
oborudovanie teplovozov. Izd.2. Moskva, Transzheldorizdat,
1963. 271 p. (MIRA 16:10)
(Diesel locomotive--Electric equipment)

BULATOV, B., MYNDAYEV, V., MAMAYEV, M., MIKHAYLOV, R. A., and ANNAYEV, R. G.,
(Ashkhabad)

"The Investigation of Even and Odd Effects in the Alloy System Ni-Cu,"
a paper submitted at the International Conference on Physics of Magnetic
Phenomena, Sverdlovsk, 23-31 May '56.

21(7)

AUTHORS:

Bulatov, B. P., Garusov, Ye. A.

SOV/89-5-6-4/25

TITLE:

Albedo of Co^{60} and Au^{198} γ -Rays From Different Materials
(Al'bedo γ -luchey Co^{60} i Au^{198} ot razlichnykh veshchestv)

PERIODICAL:

Atomnaya energiya, 1958, Vol 5, Nr 6, pp 631-637 (USSR)

ABSTRACT:

The scatterers had a size of 65.65 cm^2 and were located at a distance of 60 cm from the source (39 cm from the end of the collimeter). Neutron flux density $\mathcal{J}(\theta, \varphi)$ [MeV/cm².sec] was measured by means of a detector which was movably fastened to a hemisphere having a radius of 15 cm. The center of the hemisphere and the center at which the collimated γ -ray impinges upon the scatterers are identical. The diameter of the γ -ray impinging upon the scatterer was measured by means of the X-ray film "Kodak X 5". In the normal case it amounted to 4.50 ± 0.05 cm. In the case of a ray impinging obliquely, however, it was 2.38 ± 0.07 cm (Latitude angle $\varphi = 45$ and 60°). The strength of the Co^{60} preparation was measured by means of the dosimeter KFD-1 as amounting to $635 \text{ mC} \pm 5 \%$.

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Albedo of Co^{60} and Au^{198} γ -Rays From Different Materials

SOV/89-5-6-4/25

A special counting tube (Ref 1) was used as a detector of scattered γ -rays; this counter possesses the same degree of sensitivity with respect to different energies. The absolute albedo energy was measured with an accuracy of $\pm 15\%$. The spectral splitting-up of the scattered γ -quanta was determined by absorption in lead. The following measuring results were obtained:

Co^{60} -source $\varphi = 0^\circ$ (normal case)

Au^{198} -source $\varphi = 0^\circ$ (normal case)

Scattering material	Experimental albedo energy
C	0.046
Plexiglass	0.033
Wood	0.023
Al	0.041
Fe	0.026
Brass	0.022
Cd	0.010

Scattering material	Experimental albedo energy
C	0.16
Water	0.125
Plexiglass	0.134
Mg	0.144
Al	0.127
Fe	0.087
Cu	0.077

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Albedo of Co^{60} and Au^{198} γ -Rays From Different Materials

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Hg	0.0055
Pb	0.005
Bi	0.0048
U	0.0045
Bricks	0.035

Cd	0.024
Pb	0.013

Co^{60} -source $\varphi = 45$ and 60°

Scattering material	Experimental albedo energy	
	45°	60°

Al	0.068	0.086
Fe	0.054	0.077
Pb	0.014	0.025

Au^{198} -source $\varphi = 45$ and 60°

Scattering material	Experimental albedo energy	
	45°	60°

Al	0.142	0.187
Fe	0.110	0.131
Pb	0.018	0.026
Cd	0.047	0.054

The dependence of albedo- γ -energy on the energy of the primary γ -ray E_γ , on the angle of incidence α , upon the scatterer, on the effective atomic number, and on the density ρ of the scatterer can be represented by:

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Albedo of Co^{60} and Au^{198} γ -Rays From Different
Materials

SOV/89-5-6-4/23

$$\eta (E_{\gamma}, \alpha, z, \rho) = 3.2 \frac{1}{E_{\gamma}} \cdot \frac{1}{\cos \alpha} \cdot \frac{\rho}{z^2} \pm 20 \%$$

The problem was suggested by Professor O. I. Leypunskiy, who also supervised work. N. Ya. Buben and A. S. Strelkov assisted in carrying out experiments. There are 9 figures, 3 tables, and 7 references.

SUBMITTED:

June 14, 1958

Card 4/4

BULATOV, B. P. Cand Phys-Math Sci -- (diss) "Albedo of gamma-rays." Mos, 1959
9 pp (Acad Sci USSR. Inst of Chem Physios), 150 copies (KL, 46-59, 135)

21(4)

SOV/89-6-3-15/29

AUTHOR: Bulatov, B. P.

TITLE: The Use of Some Standard β -Counters for γ -Ray Dosimetry
(Primeneniye nekotorykh tipovykh β -schetchikov dlya γ -dozimetrii)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 3, pp 332 - 333(USSR)

ABSTRACT: The dosimetric characteristics of the following counters are described:

STS-5 (diameter: 10 mm, length of the working scope 65 mm, thickness of the steel wall: 48.5 mg/cm²).

STS-6 (diameter: 18 mm, length of the working scope 130 mm, thickness of the steel wall: 48.5 mg/cm²).

End window counter MST-17 (diameter: 20 mm, thickness of the mica windows: 5 mg/cm).

During the experiment the counters were surrounded by 2 shieldings i.e. by a tin foil (thickness: 87 mg/cm²) and a lead foil (thickness: 280 mg/cm²). An aluminum plate with a thickness of 1.5 mm was between them. The following isotopes were used as γ -radiators:

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The Use of Some Standard β -Counters for γ -Ray Dosimetry SOV/89-6-3-15/29

Hg¹⁹⁷, Hg²⁰³, Cr⁵¹, Au¹⁹⁸, Cu⁶⁴, Co⁶⁰, Na²⁴, Cs¹³⁴. The recording of the radiation spectrum of the isotopes was carried out by means of the absorption method under the conditions of a so-called good geometry. The intensity of the incident γ -radiation was measured with a bakelite-ionization chamber the inner conductive surface of which was covered by carbon. The chamber was gaged with a Co⁶⁰ standard preparation. The different atomic numbers of the wall of the chamber and of the air were taken into account by a correction. The measured dependences C/I (C = counting rate in impulses per second, I = incident intensity in Mev/cm.sec) for the different counters are graphically represented. The deviation from the mean quantity C/I for the different γ -energies and counters, denoted with ϵ , can be seen from the following table:

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The Use of Some Standard β -Counters for γ -Ray Dosimetry SOV/89-6-3-15/29

Type of counter	ϵ	
	$E\gamma < 500 \text{ kev}$	$E\gamma > 500 \text{ kev}$
STS-5	$0.033 \pm 17\%$	$0.033 \pm 18\%$
STS-6	$0.12 \pm 15\%$	$0.12 \pm 4\%$
MST-17	$0.027 \pm 16\%$	$0.027 \pm 12\%$

Since there exists a certain angular dependence of the inciding γ -radiation it is advantageous to screen off not only the working range of the counter but also on both sides beyond. V. N. Sakharov took part in the experiments. There are 3 figures, 1 table, and 6 references, 1 of which is Soviet.

SUBMITTED: August 26, 1958

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21 (8)

AUTHOR:

Bulatov, B. P.

SOV/89-7-4-9/28

TITLE:

Albedo of the γ -Rays of Isotropic Sources of Co^{60} , Cs^{137} , and Cr^{51} for Some Substances

PERIODICAL:

Atomnaya energiya, 1959, Vol 7, Nr 4, pp 369-372 (USSR)

ABSTRACT:

The author investigated the albedo of γ -ray energy emitted by an isotropic source. This source is in direct contact with the surface of the scatterer. The absolute value of the albedo is defined as the ratio between the total flux of the scattered energy J (Mev/sec) and the total flux J_0 (Mev/sec) of the energy of the primary radiation emitted by the sources into the semispace. First, the measuring method is discussed. The total error in determining the absolute value of the albedo amounts to $\pm 15\%$. The intensity of the backward scattered γ -radiation decreases exponentially with increasing distance from the source. The radiation scattered towards the outside has an intensity that is all the lower, the smaller the angles φ , at which the primary radiation is emitted, for, firstly, the scattering angle increases with a decrease of the angle φ , i.e. the probability of scattering and the hardness of the

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Albedo of the γ -Rays of Isotropic Sources of Co^{60} ,
 Cs^{137} , and Cr^{51} for Some Substances

SOV/89-7-4-9/28

scattered γ -rays decrease (the angle ψ characterizes the direction of γ -ray emission). Secondly, the distance becomes longer which must be covered by the scattered radiation in the scatterer. The same applies also to γ -rays, which are emitted under an angle ψ near 90° (but in directions which do not agree with the straight line connecting source and detector). These considerations are confirmed also by experiments concerning the determination of the spectrum of the radiation emitted from the scatterer towards the outside. These measurements were carried out for the distances $2\mu_{\text{pr}}$ and $6\mu_{\text{pr}}$. In both cases two effective lines of different intensities with the energies 300-400 and 600-700 keV are discernible in the spectrum of the scattered radiation. The angular distribution of the intensity of the scattered radiation is anisotropic. In the case of hard γ -radiation the intensity maximum is near such ψ as are near 90° . With a decrease in the energy of primary radiation, the anisotropy of the angular distribution of the intensity of scattered radiation becomes weaker, the maximum becomes indistinct and shifts towards smaller angles.

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Albedo of the γ -Rays of Isotropic Sources of Co^{60} ,
 Cs^{137} , and Cr^{51} for Some Substances

SOV/89-7-4-9/28

With an increasing nuclear charge number of the scattering substance, angular distribution becomes more and more isotropic. All these phenomena may be explained by the anisotropy of the angular distribution of Compton scattering and by the greater hardness of those γ -quanta which are scattered into small angles. The albedo of the γ -radiation of an isotropic source decreases in inverse proportion to the nuclear charge number of the scattering substance. Three tables contain the albedo values of the γ -radiation energy of isotropic sources of Cr^{51} , Cs^{137} , and Co^{60} , which were determined experimentally. The author thanks Professor O. I. Leypunskiy for his constant interest in the present investigation, and P. A. Yampol'skiy for discussing the results obtained. There are 5 figures, 3 tables, and 7 references, 2 of which are Soviet.

SUBMITTED: March 19, 1959

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42550
S/089/62/013/005/002/012
B102/B104

24.6710

AUTHOR: Bulatov, B. P.

TITLE: Some rules governing γ -ray propagation along the interface of two media

PERIODICAL: Atomnaya energiya, v. 13, no. 5, 1962, 440-445

TEXT: A study was made of the scattering of γ -rays ($0.33 \leq E_{\gamma} \leq 1.25$ Mev) emitted by an isotropic source (Co^{60} , Cs^{137} , Cr^{51}), having an activity of 2 μ curies - 7.25 curies, from a plane surface of a substance with $Z \leq 26$ (earth, concrete, carbon, iron). In all experiments the source was in the air. A TC-5 (STS-5) counter, kept moving 15 cm above the scatterer surface, was used to detect the scattered quanta. At $\alpha = 0$ the scattered γ -radiation had an intensity peak directly above the place where the primary ray was incident. With greater α this peak shifted slightly forward and became higher. Also the "forward tail" of the intensity distribution became more distinct as α increased. At large angles of incidence the maximum intensity ceased to increase with α . For $\alpha > 85-88^\circ$ it began to decrease. The point of reversal depends on E_{γ} .

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S/089/62/013/005/002/012
B102/B104

Some rules governing γ -ray ...

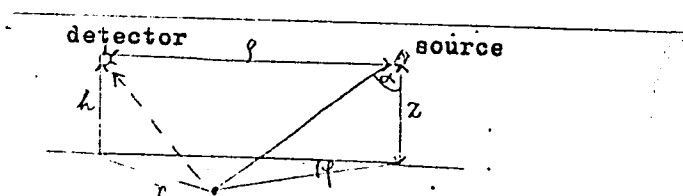
for $E_\gamma < 600$ keV it is below 85°C , for very high E_γ it is near 90° . A study of the intensity distribution over the azimuthal angle φ showed that if $\varphi = 1\text{m}$, the effective surface of the scatterer is in a sector where the angle of aperture $\varphi = \pm 20 - 30^\circ$. Its radius is ~ 10 h if $\varphi > 2-3$ z and $h < z$. Measurements of the amount that the intensity decreases with increasing r (up to 200 m) were made using a 400-CM-2 (400-SBM-2) counter, 83 cm above the earth and with Co^{60} sources. The measured results using sources of different intensities were converted to a uniform source activity of 187 μcuries . $\ln I_\gamma^2$ has a low maximum with small φ after which it decreases as φ increases. The dependence of the ratio $I_{\text{scatt}}/I_{\text{tot}}$ of φ was also measured. For γ -radiation scattered by air this ratio increases with φ if φ is small, but in the case of radiation scattered by the earth it remains almost constant. With large φ (up to 2 m) $I_{\text{scatt}}/I_{\text{tot}} = f(\varphi)$, with $h=z=1$, has a peak close to the source after which it decreases rapidly and for $\varphi > 1\text{m}$ it is constant. For $h=z=8$ cm the curve has a wide maximum between $\varphi = 100$ and $\varphi = 150$ cm. These experiments were made with a Ce^{137} source. The effect of the type of the source is

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Some rules governing γ -ray ...

S/089/62/013/005/002/012
B102/B104

important especially with β -values up to 1 m. The course of these curves is similar for Co^{60} and Cs^{137} , for Cr^{51} the $I_{\text{scatt}}/I_{\text{tot}}$ -ratio is much higher with small β , the maximum is at much smaller β . Analogous measurements were made also with $h \gg z$.



There are 7 figures.

SUBMITTED: January 29, 1962

Card 3/3

ANDRYUSHIN, N.Z.; DULATOV, Z.P.

Backscattering of gamma rays from spherical surfaces.
Atom. energ. 19 no.4:392-393 0 '65. (MIRA 18:11)

IL 26726-66 EWT(1)/EWA(h)

ACC NR: AP6013511

SOURCE CODE: UR/0120/66/000/002/0119/0123

AUTHOR: Andryushin, N. F.; Antonov, Ye. A.; Bulatov, B. P.; Koridalin, V. Ye.; Strelkov, A. S. 42
41
B

ORG: Institute of Physics of the Earth AN SSSR, Moscow (Institut fiziki Zemli AN SSSR)

TITLE: A wide-range detector of light pulses 5

SOURCE: Pribery i tekhnika eksperimenta, no. 2, 1966, 119-123

TOPIC TAGS: light pulse, radiation detector, photomultiplier

ABSTRACT: A wide-range device for detecting intermittent light pulses is described. The basic element of the unit is a photomultiplier with alloyed dynodes. The output voltage pulses are taken from load resistors connected in the dynode circuits and fed to the measurement system. With the proper supply voltage and a slight correction in the voltage distribution between dynodes, there is a difference of an order of magnitude between the sensitivities of two adjacent dynodes. A detector with a linear dynamic range covering four orders of magnitude in the intensity of light pulses was made by taking the signals from four dynodes. Various types of photomultipliers were studied by modulator control of the photocurrent and by exposing the photocathode to short bursts of light. The experimental conditions and procedure are briefly described. The photomultipliers used were the FEU-13, -15 and -16 with alloyed dynodes and the

Card 1/2

UDC: 621.383.5:535.5 2

L 26726-66

ACC NR: AP6013511

FEU-27 and -31 with antimony-caesium coated dynodes. Both methods were used for studying the miniature FEU-15. Typical dynode output curves for this tube are given. The dynodes have a linear output range of more than 6-8 v with a 5% deviation from linearity. Formulas are given for determining signal magnitude in the linear region of the output curve for a given measurement rank, as well as for finding the sensitivity of any rank. The linearity of the dynode characteristics was studied with a direct-current component through the photomultiplier. It was found that the voltage across the dynode gap decreases as the gap approaches the anode. There is a simultaneous increase in the voltages across the dynode gaps closest to the photocathode since the total voltage across the photomultiplier remains constant. This is due to the initial increase in signal magnitude. A further increase in the anode current reduces the pulse amplitude from the dynode as a result of current limiting in the subsequent dynode gap due to the space charge. Thus there is a reduction in the difference between pulse currents in the preceding and succeeding dynode gaps. The sign of this difference may change when the anode current reaches a high enough value, with a resultant change in the polarity of the signal from the dynode. It is found that the direct current through the photomultiplier should be much less than the divider current for normal operation of the device. The authors are grateful to V. S. Yuzgin for participation in this work. Orig. art. has: 8 figures, and 2 formulas. [14]

SUB CODE: 20/

SUBM DATE: 11Mar65/

ORIG REF: 003/

ATD PRESS: 4258

Card 2/2 FV

L 34378-66 EWT(m)/EWP(j) IJP(c) RM

ACC NR: AP6021998

SOURCE CODE: UR/0120/66/000/003/0066/0069

AUTHOR: Ipatkin, I. S.; Bulatov, B. P.; Antonov, Ye. A.

ORG: Earth Physics Institute, AN SSSR (Institut fiziki zemli AN SSSR)

TITLE: Soft x-ray detector for the 1—12 Å range

SOURCE: Pribery i tekhnika eksperimenta, no. 3, 1966, 66-69

TOPIC TAGS: x ray detection, x ray filter, x ray measurement

ABSTRACT: A soft x-ray detector is described which was designed to register radiation in the 1—12 Å range. The design, shown in Fig. 1, comprises the detector proper and an attached x-ray source for calibration. Detection is made by means of an FEU-15 or -16 photomultiplier using a plastic scintillator. The detector is housed in a light-tight casing, except for the input window, which is covered with a thin layer of vaseline. Detected output is taken off an emitter follower for recording, etc. The detector is calibrated differentially by bombarding the scintillator from the controlled x-ray source through a series of beryllium foil filters (8) of various thicknesses. Characteristic curves for the detector are given.

Card 1/2

UDC: 621.387

L 34378-66

ACC NR: AP6021998

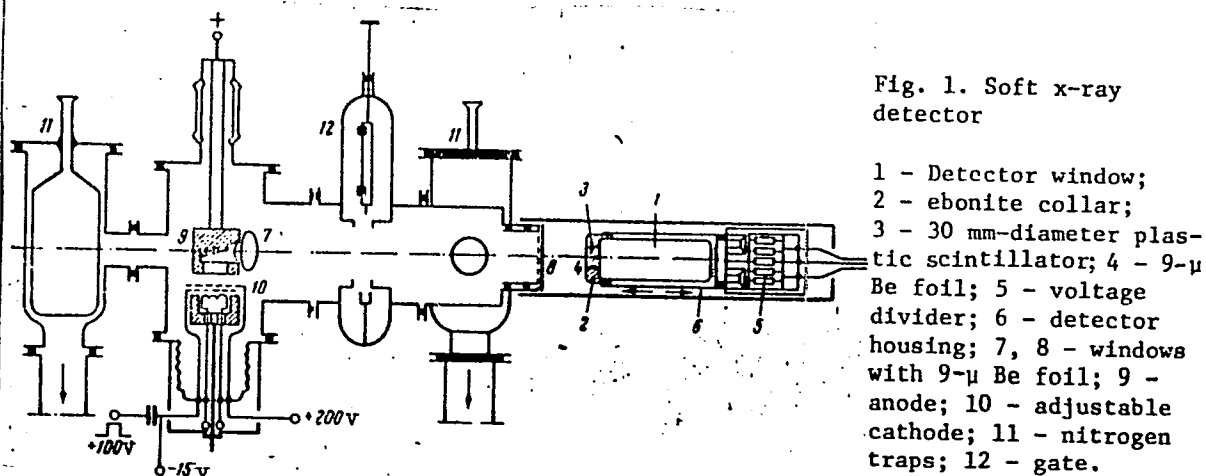


Fig. 1. Soft x-ray detector

Operation can be in a pulsed or continuous mode, and the energy range registered is from 1 to 20 kev. X-ray flux recorded over a given spectral interval is estimated accurate within 15—20%. Orig. art. has: 5 figures and 1 formula. [SH]

SUB CODE: 17, 18/ SUBM DATE: 05Apr65/ ORIG REF: 004/ OTH REF: 002/ ATD PRESS:

Card 2/2

5034

ACC NR: AP6034102

(A)

SOURCE CODE: JF/0089/66/021/004/0298/0300

AUTHOR: Andryushin, N. P.; Bulatov, B. P.; Fradkin, G. M.

ORG: none

TITLE: Certain characteristics of the field of back-scattered gamma radiation inside working spaces

SOURCE: Atomnaya enegiya, v. 21, no. 4, 1966, 298-300

TOPIC TAGS: gamma radiation, gamma scattering, radiation dosimetry, radiation hazard, model test

ABSTRACT: The authors have verified results obtained by model tests on the doses of scattered γ radiation in rooms and their distribution, and checked them in a real chamber intended for work with powerful γ radiation, with a wall thickness of 100 cm and dimensions 440 x 320 x 260 cm. The source was Co^{60} with activity 1.9 μcurie and Cs^{137} with activity 14 μcurie . The detector was a gas-discharge STS-5 counter tube. The scattered γ radiation was measured against the background of the primary radiation by using lead foils as filters. A table of the γ ray energy accumulation factors for different scattering substances (water, concrete, aluminum, iron, lead) is presented. The results confirm the earlier results, obtained with the models, that the accumulation factors increase with increasing chamber dimensions and reach the limiting values, equal to the accumulation factors when reflected from flat barriers, at linear dimensions larger than 4 - 6 mean free paths of the primary radiation quanta in the wall

Card 1/2

UDC: 539.122: 539.121.72: 621.039.58

ACC NR: AP6034102

material. The accumulation factor is defined as the ratio of the γ radiation flux densities measured with and without the scatter. Orig. art. has: 4 figures, 3 formulas, and 1 table.

SUB CODE: 18/ SUBM DATE: 11Apr66/ - ORIG REF: 005/ OTH REF: 003

Card 2/2

ACC NR: APT000785

SOURCE CODE: UR/0089/66/021/005/0345/0356

AUTHOR: Bulatov, B. P.

ORG: none

TITLE: Procedure for calculating the intensity of back-scattered γ radiation

SOURCE: Atomnaya energiya, v. 21, no. 5, 1966, 345-356

TOPIC TAGS: gamma scattering, gamma background, radioactive source

ABSTRACT: By combining information from a large number of sources, the author has compiled formulas and graphs which make it possible to calculate the density of the energy flux of backward-scattered γ radiation at various distances from the source, for several cases that occur frequently in laboratory practice, namely a narrow beam incident at various angles on the scattering surface, an isotropic source in direct contact with the surface, and a flat unidirectional flux of γ quanta. In the latter case, three different possibilities are considered (the scatterer has an infinite thickness but bounded surface; the scatterer is infinitely broad but is bounded in thickness; the scatterer does not have a flat surface). The sources covered are the most widely used isotopes (Co^{60} , Cs^{137} , Au^{198} , and Cr^{51}). The scattering substances are carbon, concrete, aluminum, iron, and lead. It is pointed out that presently available theoretical and experimental data do not yield sufficiently general relations for quantitatively determining the scattered γ radiation. The accuracy of the calculations by means of the proposed formulas is $\pm 20\%$. This is claimed to be the

Card 1/2

UDC: 539.122: 539.121.72. 621.030.58

ACC NR: AP7000785

first attempt to obtain engineering formulas and nomograms for determining the amounts of the scattered γ radiation. Orig. art. has: 8 figures, 6 formulas, and 1 table.

SUB CODE: 18, 20/ SUBM DATE: 01Apr66/ ORIG REF: 004/ OTH REF: 007

MALAKHOV, A.Ye.; BULATOV, D.I.

Determining Bakal carbonate minerals by color reactions.
Zap. Vses. min. ob-va 87 no.4:501-503 '58. (MIRA 12:1)
(Bakal region--Carbonates (Mineralogy))

MALAKHOV, A.Ye.; BULATOV, D.I.

Textures of carbonate iron ores of the Bakal region. Trudy Gor.-geol.
inst. UFAN SSSR no.40:93-112 '59. (MIRA 13:11)
(Bakal region--Iron ores)

BULATCV, D.I.

Nature of sutures in carbonate rocks in the area of Bakal. Izv.
vys. ucheb. zav.; geol. i razv. 2 no.12:100-102 '59. (MIRA 14:6)

1. Sverdlovskiy gornyy institut.
(Bakal region--Rocks, Carbonate)

MALAKHCV, A.Ye.; BULATOV, D.I.

Separation of Bakal carbonate ores in the Thoulet solution by
the method of centrifugation. Trudy Gor.-geol.inst. UFAN SSSR
no.56:151-153 '61. (MIRA 15:7)
(Bakal region--Carbonates--Analysis)

BULATOV, D.I.

Behavior of phosphorus during contact metasomatic processes as
exemplified in the Malyy Kuybas and Magnitnaya Mountain deposits.
Dokl. AN SSSR 151 no.6:1428-1429 Ag '63. (MIRA 16:10)

1. Magnitogorskaya kompleksnaya geologorazvedochnaya partiya.
Predstavleno akademikom D.S.Korzhinskim.

BULATOV, E.I.—

Two-pulse spot welding of tempered and cold-hardened steels.
Mashinostroitel' no.3:30-31 Mr '63. (MIRA 16:4)

1. Zamestitel' predsedatelya soveta Nauchno-tekhnicheskogo
obshchestva mashinostroitel'noy promyshlennosti, glavnyy
svarshchik Izhevskogo mashinostroitel'nogo zavoda.
(Electric welding)

BELATOV, N. I., izzh.

Spot welder with revolving electrode for welding light alloys.
Sov. pat. no. 6831-33 Je '64 (MIRA 1842)

1. Izhevskiy mashinostroitel'nyy zavod.

L 29686-66 EWP(k)/ENT(m)/T/ENP(v)/ENP(t)/ETI JD/FM

ACC NR: AP6008814

(N)

SOURCE CODE: UR/0135/66/000/003/0017/0018

AUTHORS: Demina, N. I. (Engineer); Bulatov, E. I. (Engineer); Shevchuk, G. I. (Engineer); Sirik, A. T. (Engineer)

40
B

ORG: Izhevskiy Machinery Factory (Izhevskiy mashinostroitel'nyy zavod)

TITLE: The strength and plasticity of a welded seam with a groove under biaxial tension

SOURCE: Svarochnoye proizvodstvo, no. 3, 1966, 17-18

TOPIC TAGS: tensile strength, plasticity, welding inspection,
weld, welding technology, metal testing, metal to metal bonding/ 25KhGSA steel

ABSTRACT: The effect of a groove on the strength and localized plasticity of a basic metal with a welded seam under nonsymmetrical ($\sigma_2/\sigma_1 = 0.5$) biaxial tension is studied. Specimens of 25KhGSA steel, 2.5 mm thick, were used in the tests after sections of the metal were welded together according to a carefully controlled process. Several tests were performed: the tensile strength limits of the metal were measured in simple and biaxial tension both with and without welding, as well as with and without a groove cut in the specimen. The local plasticity was also measured under the same conditions. The results of the tests (see Fig. 1) indicate that the tensile strength limit σ_B increases 5-10% and the local plasticity e_1 increases by a factor of

Card 1/2

UDC: 621.791.754.052.011:546.293:669.15.194

L 29686-66

ACC NR: AP6008814

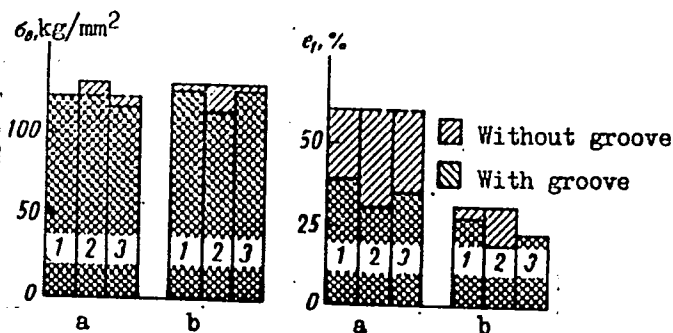


Fig. 1. The effect of a groove on the strength and plasticity of the base metal, welded seam, and transition zone: a - axial tension; b - biaxial tension; 1 - base metal (25KhGSA steel, 2.5 mm thick); 2 - welded seam; 3 - transition zone of the welded seam.

two with transition from axial to biaxial tension in the base metal, the metal of the weld seam, and the metal of the transition zone. In axial tension the presence of a groove in the specimen is of minor importance. In biaxial tension the presence of the groove lowered the strength of the welded seam by about 13%. Orig. art. has: 3 figures and 1 table.

SUB CODE: 13,11,20/SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001

Card 2/2 CC

BULATOV, G., inzh.

Foam plastics in aeronautics. Av.i kosm. 44 no.3:62-65 '62.
(MIRA 15:3)
(Plastic foams) (Airplanes--Design and construction)

1905 年 2 月 2 日

... this form in space. Gruzha. av. 22 no. 8:30 ag 165.
(MIRA 18:3)

BULATOV, G.A., inzh.

Plastic foams in shipbuilding (from foreign journals). Sudostroenie
28 no.6:71-73 Je '62. (MIRA 15:6)
(Shipbuilding--Equipment and supplies) (Plastic foams)

BULATOV, Georgiy Aleksandrovich; LOSEV, B.I., doktor tekhn.
nauk, prof., red.; KALASHNIK, G.I., red.; KALACHEV, S.G.,
tekhn. red.

[Plastic foams used in airplane manufacture] Penoplasty v
avistsionnoi tekhnike. Moskva, Voenizdat, 1963. 93 p.
(MIRA 16:12)

(Airplanes--Design and construction)
(Plastic foam)

BULATOV, G.A., inzh.

Use of foam plastics in the construction of power systems. Energ.
stroi. no.42:97-103 '64. (MIRA 18:3)

BULATOV, G.A.

Spray guns for foam plastics and calculation of the basic
parameters of air-liquid jets. Plast. massy no.5:27-32 '65.
(MIRA 18:6)

1. BULATOV, G. P.
 2. USSR (600)
 4. Kamyshlov District-Fur Farming
 7. Fur farming in collective farms of Kamyshlov District, Sverdlovsk Province.
Kar. i zver. 6 No. 1 1953
9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

ZYBIN, Yu.P., dektor tekhn.nauk, prof.; BULATOV, G.P., inzh.

Classification of the joint constructions for sole parts. Izv.vys.
ucheb.zav.; tekhn.prom. no.3:101-108 '61. (MIRA 14:7)

1. Moskovskiy tekhnologicheskoy institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii obuvi.
(Shoe manufacture)

KABYSHEVA, S.A., inzh.; BULATOV, G.P., inzh.; ZYBIN, Yu.P., doktor tekhn.
nauk, prof.

Contact thermodiffusion method of moistening shoe uppers. Izv.
vys.ucheb.zav.; tekhn.prom. no.5:93-97 '61. (MIRA 14:12)

1. Moskovskiy tekhnologicheskii institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii obuvnogo proizvodstva.
(Shoe manufacture)

18(7)

PHASE I BOOK EXPLANATION

80V/2296

Material'nyy mashino-isledovatel'skiy Institut tekhnologii i mashinostroyeniya
 Korrupsiya i sashchite metallor v mashinostroyeni (Corrosion and Protection
 of Metals in the Machine-Building Industry) Moscow, Mashgiz, 1959. 347 p.
 (Series: Itz. [Zhurnal] kn. 98) 3,500 copies printed.

Ed.: A. V. Ryabchenko, Doctor of Chemical Sciences, Professor; Ed. of Publishing House: A. L. Krotov, Engineer; Tech. Ed.: B. I. Medel; Managing Ed. for Literature on Heavy Machine Building (Mashgiz): S. Ya. Golovin, Engineer.

REMARKS: This collection of articles is intended for designers, technologists, and industrial and research workers concerned with corrosion and corrosion protection of metals.

CONTENTS: This collection of articles deals with problems of corrosion and metal protection under investigation at TSIIMMASH during the past two years. The articles discuss stress corrosion, intergranular corrosion, scale and heat resistance of austenitic steels in gaseous media, protective coating, fretting corrosion, and resistance of metals to cavitation. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS

Ryabchenko, A.V., E.I. Kuznetsov (Candidate of Physical and Mathematical Sciences), A.A. Medvedev, and A.Y. Vedenyayev (Engineer). Method of Determining the Resistance of Steel to Intergranular Corrosion by Vibration High-Frequency Resonance Instruments 85

PART II. GAS CORROSION AND ITS EFFECT ON THE HEAT-RESISTANCE PROPERTIES OF AUSTENITIC STEELS

Ryabchenko, A.V., and Ye.Ye. Rudaya. Zinc Phosphate Electroplated Coating and Its Protective Properties 232
 The authors obtained zinc phosphate deposits from acid and alkali electrolytes. They describe the properties and characteristics of these deposits.

Ryabchenko, A.V., I.A. Bulyakov (Engineer), and D.M. Vedenyayev (Technician). Chromium-Plating Large Plates 238
 The authors describe the experimental sectional chrome plating of 6000 x 1500 x 50 mm. plate by means of conventional industrial generators.

Ryabchenko, A.V., and Y.P. Galpenev (Engineer). Electroplating for Protection of Equipment in Tropical Climate (Survey of Non-Soviet Research) 244

Lashkov, A.K. (Engineer). Protective Scale-Resistant Ceramic Coating (Survey of Literature) 261

PART IV. INVESTIGATIONS OF PREVENTION OF CORROSION AND CAVITATION

Ryabchenko, A.V., and O.E. Muravskiy (Candidate of Technical Sciences). Preventing Corrosion of Metals and Methods of Prevention 273
 The authors discuss information on preventing corrosion obtained from non-Soviet sources, mostly English.

Trubnikov, M.G. (Candidate of Technical Sciences), and N.P. Kocherzhevskiy (Candidate of Technical Sciences). Corrosion and Cavitation Resistance of Some Copper-Base Alloys 332
 The authors discuss an investigation of a copper-base alloy developed by TSIIMMASH and give the chemical composition.

AVAILABLE: Library of Congress

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Card 7/7

③

RYKOVA, A.V., kand. tekhn. nauk; BULATOV, I.A., inzh.; VEDENEYEV, D.M.,
tekhnolog

Chromium plating of large plates. Trudy TSNIITMASH 92:238-243
'59.

(Chromium plating)

(MIRA I2:8)

1. BULATOV, I.G.
2. USSR (600)
4. Agriculture
7. Contracts and their role in preparing complete collectivization, Vop.ist. no. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953. Unclassified.

BULATOV, Ivan Grigor'yevich; LEPNIKOVA, Ye., red.; MOSKVINA, R.,
tekhn.red.

[Cooperation and its role in the preparation of massive
collectivization] Kooperatsiia i ee rol' v podgotovke
sploshnoi kollektivizatsii. Moskva, Izd-vo sotsial'no-ekon.
lit-ry, 1960. 199 p. (MIRA 13:4)
(Agriculture, Cooperative)

S/137/62/0001 -
A052/A101

AUTHOR: Bulatov, I. V.
TITLE: Electronic control of the welding process on resistance welding machines in the manufacture of anchor chains
PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 36, abstract 1E218 ("Tr. Proyechn. tekhnol. i n.-i. in-ta.", Gor'kovsk. sovnarkhoz, no. 1 (7), 1961, 40-44)
TEXT: The department of industrial electronics of PTNII carried out a work on the automation of control of the butt welding process for the half-links of chains on a machine with a hand hydraulic drive. A control equipment for the work of valves of the hydraulic system of the machine has been constructed. The equipment secures an automatic cycle of welding half-links. The electric circuitry of the equipment is presented. The performance of the circuit is based on a considerable voltage drop on the jaws of the machine when changing over from flashing off and idling to short circuit. The machine is slowed-down and switched off by limit switches. The work of the Institute is carried out

Electronic control of the welding ...

S/137/62/000/001/106/237
A052/A101

for the "Krasnyy yakor'" plant (Gor'kiy). The application of the equipment makes the welder's working conditions easier and raises the efficiency by a factor of 1.5.

Ye. Terpugov

[Abstracter's note: Complete translation]

✓

Card 2/2

BULATOV, K.M., kapitan-vtoroy pomoshchnik mekhanika

Combining occupations on the motorship "Kustanai," Rech.transp.
18 no.1:47-48 Ja '59. (MIRA 12:2)

(Inland water transportation--Employees)

BULATOV, I.A., inzh.; SHVYDKIY, V.S., inzh.

Organizing maintenance and repair of industrial equipment. Mashinostroenie no.6:9-11 N-D '64
(MIRA 18:2)

BULATOV, L.V.

Oceanographic expeditions to the Kara Sea in 1961. Probl. Arkt.
i Antarkt. no.10:98-99. '62. (MIRA 16:2)
(Kara Sea—Oceanography)

SHPAYKHER, A.O.; BULATOV, L.V.

Wind drift of the expedition ships of the "Meridian" type.
Probl.Arkt.i Antarkt. no.15:87-89 '64. (MIRA 17:4)

83813

S/190/60/002/005/003/015
B004/B067

15.8116 also 2209

AUTHORS: Bulatov, M. A., Spasskiy, S. S.

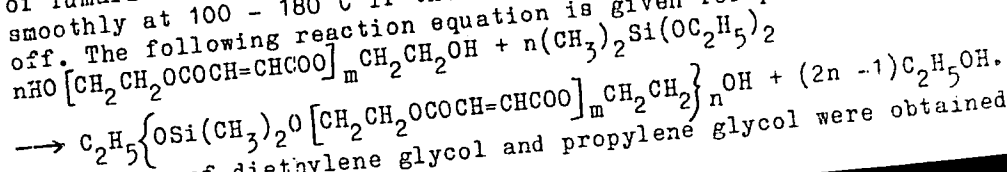
TITLE:

Synthesis of Polydimethylsiloxylalkylene Fumarates and Their Copolymerization With Styrene [Abstracter's Note: In the original title alkyl is used instead of alkylene. This is obviously a printing error as appears from the text.]

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 5, pp. 658-661

TEXT: The authors obtained polydimethylsiloxylalkylene fumarates by alcoholysis of dimethyldiethoxysilane with low-molecular glycol polyesters of fumaric acid containing free hydroxyl groups. The reaction proceeded smoothly at 100 - 180°C if the alcohol formed in the reaction was distilled off. The following reaction equation is given for polyethylene fumarate:



Monomers of diethylene glycol and propylene glycol were obtained in the

83813

Synthesis of Polydimethylsiloxymethylene
Fumarates and Their Copolymerization With
Styrene

S/190/60/002/005/003/015
B004/B067

same manner. If dimethyl-di-n-butoxysilane is used instead of dimethyl diethoxysilane, the reaction proceeds very slowly and incompletely. The compounds obtained are viscous liquids insoluble in water and aliphatic hydrocarbons, but soluble in alcohol, acetone, esters, aromatic hydrocarbons, dichloroethane, and chloroform. On contact with water or on storing in humid air, hydrolysis slowly sets in. The molecular weight fluctuated between 1,600 and 2,500. The physical data of the compounds obtained are given in Table 1. In the presence of peroxides these polyesters are capable of copolymerizing with many unsaturated compounds. Ethylene glycol polyester absorbed 30 - 70% styrene. The solubility of the latter increased when the polyester contained an increasing amount of siloxane groups. Table 2 gives the data used for calculating the copolymerization constants according to F. R. Mayo and F. M. Lewis (Ref. 8): $r_1 = 0.6 \pm 0.3$; $r_2 = 0.03 \pm 0.03$; index 1 refers to the polyester, index 2 to styrene. The introduction of organosiloxane groups into the chain of the unsaturated polyester does not influence the character of copolymerization with vinyl polymers. There are 2 tables and 8 references:

X

83813

Synthesis of Polydimethylsiloxymethylene
Fumarates and Their Copolymerization With
Styrene

S/190/60/002/005/003/015
B004/B067

7 Soviet and 1 US.

ASSOCIATION: Institut khimii Ural'skogo filiala AN SSSR
(Institute of Chemistry of the Ural Branch of the
AS USSR)

SUBMITTED: January 3, 1960

Card 3/3

15-8116

89587
S/190/61/003/002/005/012
B130/B202

AUTHORS: Bulatov, M. A., Spasskiy, S. S.
TITLE: Thermomechanical study of the copolymers of polydiphenyl
siloxymethylene fumarate with styrene
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 2, 1961, 208-212

TEXT: Two new organosilicon, unsaturated polyesters were synthesized by the method for the production of unsaturated silicon containing polyesters from dimethyl diethoxysilane with low-molecular glycol ester of fumaric acid which the authors described in Vysokomolekulyarnyye soyedineniya, 2, 658, 1960. These polyesters contain two ethyl or phenyl radicals at each Si-atom. Polydiethyl siloxymethylene fumarate (I) was produced from low-molecular polyethylene glycol fumarate (II) (12% OH groups) and diethyl diethoxysilane (III) by a 22-hr heating in nitrogen current at temperatures rising from 165 to 225°C. The ethyl alcohol with silane additions volatilized. The substances which did not enter the reaction were distilled off at atmospheric pressure and subsequently in the vacuum. The residue was a transparent product of red-orange color. The following structural formula can be calculated from

Card 1/2

89587

Thermomechanical study of...

S/190/61/003/002/005/012
B130/B202

the C, H, Si content: $[(C_2H_4 - OCOCH = CHCOO)_6 \cdot C_2H_4OSi(C_2H_5)_2O]_x$. Polydiphenyl siloxyethylene fumarate was produced like (I) from (II) and diphenyl diethoxysilane under heating to 200°C for four hr. Copolymers from (III) and styrene were studied thermomechanically according to the method by V. A. Kargin, Zh. fiz. khimii, 23, 530, 1949, and Khim. prom-st', 1955, no. 364. Cylindrical specimens with a diameter of 9 mm and a thickness of 3.2-3.5 mm were formed from the copolymers. They were studied under specific load of 8 and 40 kg/cm². The deformation curves are similar to those of the highly elastic substances. The introduction of bifunctional diorganosiloxane chains into the chain of the unsaturated polyesters causes a highly elastic deformation in the copolymers. With a composition similar to the azeotropic one, minimum deformation occurs. The constants of copolymerization of the unsaturated polyesters containing diorganosiloxane chains only slightly depend on the character of the hydrocarbon radicals at the Si-atom. There are 3 figures, 1 table, and 7 Soviet-bloc references.

ASSOCIATION: Institut Khimii Ural'skogo Filiala AN SSSR (Institute of Chemistry of the Ural Branch, AS USSR)

SUBMITTED: June 15, 1960

Card 2/2

10079

15.8110

S/190/62/004/009/001/014
B101/B144

AUTHORS: Bulatov, M. A., Spasskiy, S. S., Mishina, S. G.

TITLE: Some polyesters of bis-(hydroxy-methyl)-tetramethyl disiloxane

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 9, 1962, 1310-1313

TEXT: The reaction of bis-(chloro-methyl)-tetramethyl disiloxane with succinic, phthalic or maleic acids in xylene in the presence of triethyl amine (method A) was studied; also that of bis-(chloro-methyl)-tetramethyl disiloxane with the sodium or potassium salts of the above acids in dimethyl formamide (method B): $n\text{ClCH}_2\text{-Si(CH}_3)_2\text{-O-Si(CH}_3)_2\text{-CH}_2\text{Cl}$
 $+ n\text{HOOC-R'-COOH} + 2n(\text{C}_2\text{H}_5)_3\text{N} \rightarrow \text{Cl-CH}_2\text{-Si(CH}_3)_2\text{-O-Si(CH}_3)_2\text{-CH}_2\text{OOC-R'-COO-}_n\text{H}$
 $+ (2n-1)(\text{C}_2\text{H}_5)_3\text{N} \cdot \text{HCl}$; $\text{R}' = \text{-CH}_2\text{CH}_2\text{-}$, $\text{-C}_6\text{H}_4\text{-}$, or -CH=CH- . Physical data for the resulting compounds are given as follows (first figure: methods A; second figure: methods B). Polymaleinhydroxy-methyl-tetramethyl disiloxane: molecular weight (MW): 436, 740; acid number (AN) (mg KOH/g) 3.98, 3.21; d_4^{20} 1.108, 1.116; n_D^{20} 1.4712, 1.4828. Polyphthalohydroxy-methyl-tetra-

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Some polyesters of...

S/190/62/004/009/001/014
B101/B144

methyl disiloxane: MW 610, 989; AN 7.33, 1.61; d_4^{20} 1.138, 1.145; n_D^{20} 1.5060, 1.5125. Polysuccinhydroxy-methyl-tetramethyl disiloxane (only method B): MW 1160; AN 5.75; d_4^{20} 1.102; n_D^{20} 1.4610. The low values of AN and MW

suggest that the ends of the polyester chains are mainly occupied by chloro-methyl groups. The polyester of maleic acid polymerizes with vinyl compounds. The bulk copolymerizate with styrene is a transparent, soft substance insoluble in all organic solvents, used as a thermosetting resin. There is 1 table. The most important English-language references are: K. L. Merker, J. E. Noll, J. Organ. Chem., 21, 1537, 1956; K. L. Merker, USA Patent 2793223, 1957; USA Patent 2833802, 1958.

ASSOCIATION: Institut khimii Ural'skogo filiala Akademii nauk SSSR
(Institute of Chemistry of the Ural Branch of the Academy of Sciences USSR)

SUBMITTED: May 17, 1961

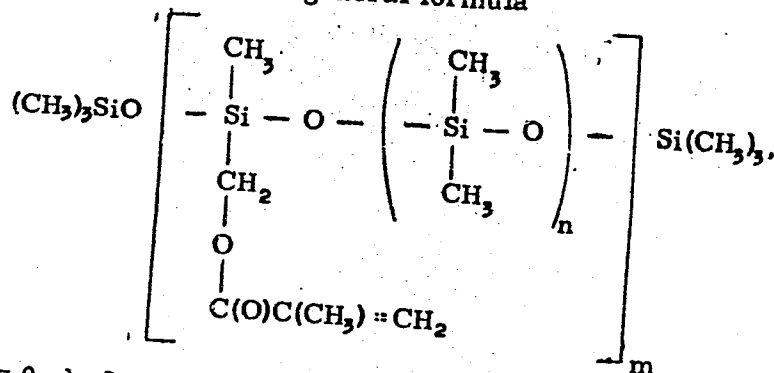
Card 2/2

AU No. 972-5 21 May *Bulatov, M.A.*

POLY(ORGANOSILOXANES) CONTAINING METHACRYLATE GROUPS (USSR)

Bulatov, M. A., S. S. Spasskiy, and S. G. Mishina. Vysokomolekulyarnyye soedineniya, v. 5, no. 3, Mar 1963, 343-347. S/190/63/Q05/003/008/024

Poly(organosiloxanes) of the general formula



where n = 0, 1, 2, 3, 5, or 9, have been synthesized by condensation of (methacrylatomethyl)methyldiethoxysilane (I) with dimethyldiacetoxysilane and dimethyldiethoxysilane in the presence of aqueous C₂H₅HSO₄ at room temperature.

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AID Nr. 972-5 21 May

POLY(ORGANOSILOXANES) [Cont'd]

8/190/63/005/003/008/024

Treatment of the condensation products with calculated amounts of hexamethyldisiloxane in the presence of concentrated H_2SO_4 yielded poly(organosiloxanes) with the desired chain length. A polymer containing methyl methacrylate groups at every Si atom was prepared by hydrolysis of I with a mixture of water and alcohol in the presence of H_2SO_4 . All the synthesized polymers are transparent, colorless liquids of mol wt 1645 to 2330. Their kinematic viscosity, d_4^{20} , and n_D^{20} increase with an increase of the methyl methacrylate-Si ratio. In the presence of peroxides, all the synthesized polysiloxanes polymerize and copolymerize with other unsaturated monomers such as styrene to form cross-linked, insoluble, glassy products. The very unusual shape of the thermomechanical curve of the polymer with a methyl methacrylate-Si ratio of 1:3 indicates that this polymer does not melt, but decomposes at about $400^\circ C$. I was synthesized from (chloromethyl)methyldiethoxysilane and methacrylic acid in the presence of triethylamine. The study was carried out by the Institute of Chemistry, Ural Branch, Academy of Sciences USSR.

[BAO]

Card 2/2

ACCESSION NR: AP4017638

S/0190/64/006/002/0265/0268

AUTHORS: Alekseyeva, I. A.; Semerneva, G. A.; Samarina, L. A.; Bulatov, M. A.; Spasskiy, S. S.

TITLE: The synthesis, polymerization and copolymerization of polyorganosiloxanes containing methacrylate groups. 2. Investigation of polymerization and copolymerization by the infrared absorption spectra method

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 2, 1964, 265-268

TOPIC TAGS: organosilicon compound, organosiloxane, polyorganosiloxane, methacrylate, styrene, copolymer with styrene, methacrylate polysiloxane polymer, double bond, saturation of double bond, infrared spectra, absorption band, absorption band optical density

ABSTRACT: Block polymerization of methacrylate polysiloxanes (containing from zero to nine of the $\text{Si}(\text{CH}_3)_2\text{O}$ groups) and their copolymerization with styrene (in a ratio of 1 Mol of styrene monomer per 1 Mol of polysiloxane unit) were investigated. The polymerization was conducted in the presence of 0.2% benzoyl peroxide in sealed ampules, in an atmosphere of nitrogen, for 6 hours at 70 and 100C and 12 hours at 120C, when it underwent complete solidification. The infrared spectra

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ACCESSION NR: AP4017638

were taken by means of a IKS-14 registering spectrophotometer, the absorption band at 1634 cm^{-1} having been selected as representing the $\text{CH}_2 = \text{C}$ - double bonds which decrease in numbers during the reaction process. The other band was the one at 697 cm^{-1} , which represents the $\text{Si}(\text{CH}_3)_2$ groups, the number of which remains constant. As can be seen from Fig. 1 on the Enclosure, an increase in the number of methylsiloxane groups causes the optical density ratios to drop due to a decrease in the double bond content. It is suggested that the presence of unreacted double bonds is due to steric hindrances. The copolymerization with styrene was found to proceed towards an almost complete saturation of the double bonds. Orig. art. has: 2 charts and 1 table.

ASSOCIATION: Institut khimii Ural'skogo filiala AN SSSR (Institute of Chemistry, Ural Division AN SSSR)

SUBMITTED: 03Dec62

DATE ACQ: 23Mar64.

ENCL: 01

SUB CODE: CH

NO REF SOV: 004

OTHER: 002

Card 2/3 ✓

L 35550-65 EWT(m)/EWP(j)/T Pc-4 RM
ACCESSION NR: AP5008197

5/0286/65/000/005/0070/0070

AUTHORS: Tarasov, A. I.; Bulatov, M. A.

TITLE: A method for producing thermosetting polymers.¹⁵ Class 39, No. 168876^{15-B}

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 70

TOPIC TAGS: thermosetting material, polymer, copolymerization

ABSTRACT: This Author Certificate presents a method for producing thermosetting polymers by copolymerization of unsaturated polyesters (having a double bond such as the maleic type in the principal chain) and with another unsaturated polyester in the presence of a peroxide initiator. The physico-mechanical properties of the polymers thus obtained are improved by using, as the other polyester, an unsaturated polyester having a double bond, such as the allyl type in the side chain.

ASSOCIATION: none

SUBMITTED: 13Jul62

ENCL: 00

SUB CODE: MT, OC

NO REF SOV: 000

OTHER: 000

Card 1/1

БУЛАТОВ М.И.

1. БУЛАТОВ М.И. Capt., ТЕТЕРЯТНИКОВ М.С. Eng
2. USSR (600)
4. Volga River-Towing
7. Towing barges on the Volga River by pushing! Rech.transp. 12 no.6, 1952.
9. Monthly List of Russian Accessions, Library of Congress, April _____ 1953, Uncl.

BULATOV, M.I.; WLESKOVSKIY, V.B.

Sorption of cations by active silica. Zhur.prikl.khim. 36 no.3:
522-527 My '63. (MIRA 16:5)
(Cations) (Silica) (Sorption)